the buffer memory.

2) In the inventions of claims 2, 4, and 6, instead of the system control unit controlling transfer data, the syndrome calculator can be provided with a detecting means for detecting from which code word an error-containing code has been detected, so the detection means can inform the system control unit of the code word detected. As a result, data can be transferred to the syndrome calculator by making the DMA control unit and the syndrome calculator do the handshake every code word. Then, the syndrome calculator informs only the presence or absence of a detected error to the DMA control unit. Therefore, data transfer is controlled within the DMA control unit.

The DMA transfer may be adopted in the inventions of the other claims.

3) The number of bits in main data and in parity of a DVD can be different, depending on various standards. In some cases, the vertical direction and the horizontal direction can be opposite, or the order of error detection can be opposite (provided that it is substantially the same as the present invention).

4) In the invention of claim 11 and the like, the number of sector groups can be varied between the portion where an error is highly likely to arise, and the other portion, due to the difference in position on a DVD such as an end portion and the center, and the fabrication method.

5) The error detector may not perform error detection although data are transferred to the error detector after the syndrome detection done by the syndrome calculator so as to exert substantially the same actions and

effects as the present invention.

6) In the pipeline processing, the number of repetition of error correction for ECC blocks to be processed can be changed depending on the type of data and experience.

7) The number of times of error correction can be changed depending on the use pattern of data by the users. To be more specific, the number can be reduced when images are reproduced at high speed for retrieval. In this case, switching operations of the users are detected on the machine side, and processes are performed accordingly. To realize this, necessary circuits and programs are provided at the fabricating stage.

8) In the eighth embodiment, the first and second syndrome calculators perform syndrome calculation for demodulated code words. Instead, one of the syndrome calculators can do it.

9) In the seventh embodiment, the syndrome calculator for demodulated code words can be slower in process and less expensive than the other syndrome calculator.

10) The error correction can be applied to broadcast such as a FM multiplex broadcast.